November 13th, 1860.

Dr. J. E. Gray, V.P., in the Chair.

Dr. Hamilton exhibited some hen Pheasants (*Phasianus colchicus*) which had partially adopted the male plumage, and pointed out that they were all affected with disease in the ovarium, and that those in which the disease had made greatest progress had advanced farthest towards the male in external appearance.

Mr. Gould called the attention of the meeting to a Kangaroo living in the Society's Gardens, generally believed to be *Macropus rufus*, but which he was inclined to consider distinct, and for which he proposed the temporary appellation of *Macropus* (*Osphranter*) *pictus*.

The Secretary read the following extracts from a letter addressed to him by the Rev. G. Beardsworth, of Selling, Kent, giving an account of two Cetaceans, mother and young (probably *Hyperoodon rostratus*), killed on the North Kentish coast, near Whitstable, October 29, 1860:—

"Dam: extreme length 26 feet; greatest girth nearly 20 feet; snout or beak 17 inches long by 7 wide; pectoral fins 29 inches long, dorsal one rather shorter. Tail set transversely, and very slightly bifurcated, in fact very nearly straight, 7 feet across. The blow-hole set transversely on the crown of the head, a single straight line, about 6 inches long, and slightly behind the eyes. Eyes of human shape, about twice the size, and furnished with eyelids. The pectoral fins set very low, so much so that a straight stick would touch the roots of both without bending. Not the slightest traces of baleen or of teeth. Tongue entirely detached beneath, and fringed with a kind of papillæ in a double row, about $\frac{3}{4}$ of an inch deep. Forehead rising abruptly to the height of 13 inches from the snout, and very slight traces of any ridge between them. Two diverging grooves beneath the throat, about 18 inches long. The dorsal and pectoral fins divide the whole length into three portions, of which the two end ones are about equal, the middle one rather longer. Colour, a brownish-black; quite black on the back and tail, shading to a dirty white below and on the cheeks."

"Young one about 14 feet long, differing only from the old one in being slighter and of a lighter colour."

"One circumstance I think deserves recording. One of the coast-guardmen who killed these animals told me that the animal 'sobbed' very much, but that its only efforts were to *smother* itself by pushing its snout into the sand. May not this give some clue to the use of the beak? May it not be to procure food by suction from the sand? This might show some reason for the papillæ-like fringe to the tongue, which was alike in both specimens."

"As showing the nature of the animal, it should also be stated that the cub could easily have escaped, and, in fact, went away three times, but each time returned from hearing the cries of her dam; on the last return, the water had become too low to permit its further escape."

Mr. O. Salvin stated that he had lately received from Mr. Robert Owen, Corresponding Member of the Society, specimens of the eggs of twenty-three species of Guatemalan birds. Amongst these were two eggs of the Quezal, or Long-tailed Trogon (*Pharomacrus paradiseus*), which he exhibited, as he believed, for the first time. Mr. Owen's note relating to their capture was as follows:—"In an expedition to the mountains of Santa Cruz, one of our hunters told me that he knew of a Quezal's nest about a league from Chilasco, in the same range, and offered to procure me the eggs and one of the birds if I would send my servant with his gun to help him. This I accordingly did, and my man returned with two eggs and the hen bird, which he said that he shot as she left her nest. He described the nest as being placed in the main stem of a decayed forest tree, about 26 feet from the ground. The hollow or nest had but one entrance, not more than large enough to allow the bird to pass,—the interior cavity being of barely sufficient capacity to allow of the female bird turning round. Inside there were no signs of a nest, beyond a layer of small particles of decayed wood, upon which the eggs were deposited.

"The mountaineers all say that the Quezal avails itself of the deserted holes of the Woodpecker, probably founding their statement upon the unfitness of the bird's beak for boring into the trunks of trees."

The following papers were then read:—

1. Note on the Female of Cuscus ornatus.
By Dr. J. E. Gray, F.R.S., V.P.Z.S., &c.

On the 11th of January of this year* I described a new species of *Cuscus*, under the name of *Cuscus ornatus*, from a male specimen sent by Mr. Wallace from the Island of Batchian.

Mr. Wallace has now sent three female *Cusci* (two adults and one younger specimen) from Ternate, which appear to be the females of the species above-described.

The older female only differs from the male from Batchian in being darker. One specimen has many more spots on it than the other; the spots are small, irregular in size, and not disposed symmetrically. The younger specimen is yellower than the others, but, still, darker and browner than the male, and only indistinctly spotted. The dorsal streak is distinct and well-marked in the whole of the three, and disposed exactly as in the male.

* See *anteà*, p. 1.

2. On a New Species of Kangaroo, of the genus Halmaturus. By John Gould, F.R.S., &c.

Halmaturus stigmaticus.

Face, sides of the body, outer side of the fore limbs, and the flanks rufous, more or less interspersed with whitish-tipped hairs; outer side of the hinder limbs rich rusty-red; occiput dark brown, interspersed with silvery-tipped hairs; ears externally clothed with long black hairs, and narrowly fringed on the front edge with white; upper surface of the body blackish-brown, interspersed with numerous whitish-tipped hairs, and gradually blending with the rufous hue of the flanks; down the back of the neck an indistinct line of a darker or blackish hue; across each haunch a broad and conspicuous mark of buff; upper lip, chin, and all the under surface of the body and the inner side of the limbs dirty white; hands and feet dark brown; upper surface of the tail dark brown; on its sides the hairs are less numerous, and the scaly character of the skin becomes conspicuous.

	ft.	in.
Length from the tip of the nose to the extremity of the tail	3	4
——— of the tail	1	4
——— of the tarsus and toes, including the nail	0	$5\frac{3}{4}$
——— of the arm and hand, including the nails	0	$6\frac{1}{4}$
——— of the face from the tip of the nose to the base of the ears	0	$4\frac{3}{4}$
——— of the ear	0	$1\frac{7}{8}$

Hab. Point Cooper, on the north-eastern coast of Australia.

Remark.—Nearly allied to *H. thetidis*, but differing from that species in being of a somewhat larger size, in the more rufous colouring of the fur, particularly of that clothing the hind limbs, and in having a broad brand-like mark of buff on each haunch.

For the discovery of this new species we are indebted to the researches of Mr. John Macgillivray. The typical specimen is now in the British Museum.

3. Note on the Japanese Deer living in the Society's Menagerie. By Philip Lutley Sclater, M.A., Secretary to the Society.

I venture to call particular attention to one out of several important additions made to the Menagerie since the last meeting for scientific business.

A pair of a very beautiful small species of Deer, quite new to the collection, were presented to the Society in July last by J. Wilks, Esq. They were obtained at Kanegawa, in Japan, and brought to this country by Captain D. Rees, of the ship 'Sir F. Williams.'

Dr. Gray has described these animals, believing them to be new, in a recent number of the 'Annals of Natural History,' as *Rusa javanica* (Ann. N. H. ser. iii. vol. vi. p. 218, Sept. 1860). But on reference to the figure of *Cervus pseudaxis* of MM. Eydoux and Souleyet in the 'Zoology of the Voyage of the Bonite' (Atlas, pl. 3. Zool. p. 64), and to the further details concerning the same animal given by Dr. Pucheran in the 'Archives du Muséum d'Hist. Nat.' (vi. pp. 416, 489), it seems probable that our new acquisition may belong to the same species. The locality of the example figured in the 'Voyage of the Bonite' was not ascertained; but a second specimen, brought home by the expedition of the 'Astrolabe and Zelée,' was said to have come from the Sooloo Islands. This discrepancy of localities is a fact which would lead me to believe that our animals are different from *Cervus pseudaxis*; but in the structure of the horns, in the general colouring of the body, in the elongation of the hairs of the mane and throat, and in the disappearance of the white spots in winter, our specimens seem to me to agree well with the peculiarities indicated by the French authorities; and the male possesses partially developed canines, which are likewise spoken of in the case of *Cervus pseudaxis*.

Mr. Blyth has also recently described a Deer from the island of Formosa, under the name *Cervus taiouanus* (Journ. As. Soc. Beng. xxx. p. 90), which is probably likewise referable to this same species. At the time of writing this description, Mr. Blyth was inclined to consider the Formosan animal different from a pair of the small Deer of Japan, which he had living with him in Calcutta at the same date. This opinion, however, he has subsequently modified, stating, in a letter, addressed to me, dated July 4th of the present year, with reference to the Formosan and Japanese Deer, which he had then turned out together in his garden at Calcutta, that he was "satisfied that they were of one and the same species."

My opinion therefore is—though I do not state it without hesitation, against so high an authority on the subject of the *Cervidæ* as Dr. Gray—that *Rusa javanica* is probably a synonym of *Cervus pseudaxis*, Eydoux and Souleyet, and *Cervus taiouanus*, Blyth. But there is, perhaps, a still older appellation for this little Deer. The figure of Temminck and Siebold's *Cervus sika*, in the 'Fauna Japonica,' certainly looks very little like the male of this species. The uniform colouring and the third branch to the horns are very noticeable points in which it differs from our male Deer. To the description given in the same work I have unfortunately had no access, the sheets containing it being deficient in the only copy I have been able to consult. But Mr. Bartlett, who has lately returned from Holland, informs me that a female Deer living in the Gardens at Amsterdam, and there considered as *Cervus sika*, is undoubtedly the same as ours; and as the Dutch naturalists have consulted the type in the Leyden Museum, there appears to be little doubt of the fact. I am therefore induced to believe that the following may prove to be the correct synonymy of this species of Deer:—

Cervus sika.

Cervus sika, Temm. & Sieb. Fauna Japonica, Mamm. pl. . (fig mala).

Cervus pseudaxis, Eyd. & Soul. Voy. Bonite, Zool. p. 64. pl. 3. Buch. Arch. Mus. Par. vi. pp. 416, 489; Wagn. Suppl. Schreber's Saüg. v. p. 364 (?).

Cervus axis, ex China, Cantor, Ann. N. H. ix. p. 274.

Cervus taiouanus, Blyth, J. A. S. B. xxix. p. 90.

Rusa javanica, J. E. Gray, Ann. N. H. ser. 3. vi. p. 218.

Mr. Blyth, it may be remarked, is of opinion (J. A. S. B. xxix. p. 90) that this Deer "belongs strictly to the *Elaphine*, and not to the *Axine* group," and states that its skull "has the same large round infra-orbital foramina as *C. elaphus*, and its immediate congeners.

4. On the Affinities of Balæniceps. By Professor J. Reinhardt, For. M. Z.S.

The majority of ornithologists seem to look upon the *Balæniceps* as approaching nearest to *Cancroma*, and to consider it the African representative of this South American type. Now it shall be freely conceded that it indeed appears more nearly allied to the Boatbill than to the Pelicans, to which Mr. Gould was inclined to refer this, perhaps the most extraordinary of the numerous highly interesting new forms introduced by him in ornithology. The *Balæniceps* seems, further, better placed in the neighbourhood of the *Cancroma* than between the Spoonbills and the Flamingos, as proposed by M. Des Murs,—a position admissible, I think, only when the texture of the egg is made the ruling principle of classification. But it may be questionable whether the large Storks (*Leptoptilos*) do not make a nearer approach to it than the Boatbill; and I do not hesitate to advance, that at all events this last-mentioned bird is not its next of kin.

When several years ago I became first acquainted with the description and the admirable figures of the bird in question in the 'Proceedings' of the Zoological Society of London, I was struck with some features in the gigantic new form, recalling to my mind another curious bird, and I wondered why it had not been compared with this as well as with the Pelicans, Cranes, Herons, and the Boatbill; but having no opportunity to examine the *Balæniceps* itself, I could not arrive at any settled opinion.

The Museum at Copenhagen having last year obtained a female specimen of this rare bird from the Imperial Museum at Vienna through the generous interference of Prof. Steenstrup, I have at length been able to substantiate, through immediate comparison, that (indeed as I presumed) the equally African *Scopus* is the nearest relation of the *Balæniceps*. I may be permitted shortly to state my reasons for this *rapprochement*.

The *Cancroma* does not, in my opinion, represent a peculiar sub-

family ; it is in every respect a Night Heron gifted with a very singular beak. The plumage, the feet and their serrated middle claws, and further the colour, manifest the affinity. Even in the bill, anomalous as at first sight it may appear, a minute examination will enable us to recognise the beak of a stout-billed Night Heron (*A. violacea*, for instance), strongly modified, it is true, in shape, but still exhibiting many of the essential characters. To the beak of the *Balæniceps*, on the contrary, it seems to afford only an analogy (and not even a very strong one), but no true affinity. Its flattened form, and the slender and pliable branches of the lower jaw, prove, in my opinion, that the beak of the Boatbill is calculated to be rather a very capacious than a very strong one ; whilst the bill of the *Balæniceps*, being higher than broad, evinces an extraordinary strength in almost every feature, but especially in the powerful hook, in which the culmen terminates. In the Boatbill there is no such hook, but the upper mandible is provided with the usual notched tip of the Night Herons, not separated from the sides of the bill by a well-marked groove, as is the hook of its presumed kindred ; and if we carry on the comparison further, we shall find that the lower jaw does not offer the truncated apex, characterizing this part in the *Balæniceps*, and being indeed the consequence of the shape of the hook. The different form of the nostrils and the different size and extent of the nasal groove afford other notable points of diversity between the two birds ; and though the skin of the throat may be dilatable in a certain degree in the living *Balæniceps*, I should not think that this bird possesses a true pouch like that of the *Cancroma*. At all events the fact of the mentum being very thick-feathered throughout two-thirds of its length induces me to doubt it ; and the stout and apparently little pliable under-jaw seems also to make it not very probable.

It must be conceded, that the *Balæniceps* approaches much to the *Cancroma* in the general structure of the feet ; but it has not, like this bird, a pectinated middle claw ; and this circumstance affords, in my opinion, a strong warning not to class it with the Boatbill, as this peculiar serrature never fails in any member of the Heron tribe.

As to what relates to the nature of the plumage, the *Balæniceps* differs also in not unimportant points from the *Cancroma*, the downy part of each feather being proportionally larger, and genuine down being intermixed in considerable quantity among the feathers, as in *Leptoptilos*, while in the *Cancroma* and the Herons there is hardly any down at all amongst them : moreover the hyporhachis is well developed in the last, but very small in the *Balæniceps*, which also in this point seems to adhere to the Storks, in certain species of which it is even entirely wanting. The distribution of the feathers on the body (the pterylose) cannot be accurately studied on a stuffed skin ; therefore I am not able to give any sufficient account of it in the *Balæniceps* ; but even now I think I may say, that the pterylose of this bird, when minutely examined, will probably show notable differences from that of the Boatbill. It especially appears that the neck is feathered nearly all over, while in the Boatbill and the whole Heron-tribe there are large *apteria* on this part. A point of

some consequence to be cleared up, but about which I can say nothing myself, is whether the *Balæniceps* is gifted or not with those curious limited spots, clothed only with a peculiar sort of down (the "Puderdunenfluren" of Nitzsch), which characterize the *Cancroma* as well as the Herons, but are wanting in the *Scopus* and the Storks.

If, on the other hand, we now compare the beak of the *Balæniceps* with that of the *Scopus*, we shall find a very remarkable accordance in nearly all material points. In both of them the nostrils are shaped exactly in the same way, being narrow, just perceptible slits. In *Scopus* as well as in *Balæniceps* the culmen is separated throughout its whole length from the sides of the bill by a deep narrow groove or furrow, and terminates in a powerful hook, though it is conceded that the hooked tip is proportionally not quite so large in the former. The very sharp *carina* into which the culmen is compressed in the *Scopus*, is indicated by a ridge along the broad culmen of the *Balæniceps*; the apex of the lower jaw is truncated in the same way in both birds; and notwithstanding the nearly perpendicular position of the sides of the bill in the *Scopus*, the tomia are convex and bend inwards, as in the *Balæniceps*. In a word, the minute detail of the bills of these two remarkable birds is, as far as I can see, very much the same; and, indeed, if we fancy the beak of the *Balæniceps* so much compressed that the ridge along the culmen becomes converted into a sharp cutting edge, and the branches of the lower maxilla touch each other in the anterior half of their length, it will assume most exactly the shape of that of a gigantic, but somewhat short-billed *Scopus*.

With regard to the feet, it is true that the toes are connected by a short interdigital membrane in the *Scopus*, while there is no vestige of it in the *Balæniceps*. The importance of this difference may perhaps be differently appreciated by zoologists, but I need not enter into a discussion as to its value; for, should the disappearance of the interdigital membrane be considered a serious obstacle against classing this bird with the *Scopus*, it must likewise divorce it from *Cancroma*, where such a membrane also exists, being only somewhat smaller than in the *Scopus*. For the rest, there is no material difference in the structure of the feet of the two birds, the hind-toe even in the *Scopus* being inserted at the level of the other toes. It must, however, be confessed, that in this oft-mentioned bird also the middle nail is pectinated, though indeed not quite so regularly as in the Boatbill. This is certainly a remarkable deviation from the *Balæniceps*; but it is obvious that this fact, at all events, cannot be adduced as an argument in favour of a nearer relationship to the *Cancroma*.

In the ptilose of the *Scopus* seem to prevail nearly the same peculiarities which have been mentioned as distinguishing the plumage of the *Balæniceps* from that of the Boatbill; and even in this respect it certainly proves a nearer relation than the last-mentioned American bird. With regard to the pterylose, the *Scopus* is known in a certain point to deviate from, I believe, all the other waders, the feathers on the neck being arranged in a manner quite peculiar; should, therefore, the neck of the *Balæniceps* really prove to be feathered all

round, there will so far be a difference: but it must be remembered that a neck feathered throughout might possibly approximate the *Balæniceps* to the Storks, but never to the Boatbill.

I believe that a minute consideration of the external characters of the *Balæniceps* will sufficiently enable us to recognise in this gigantic wader a near relative of *Scopus*; but, no doubt, new and important proofs are to be derived from the skeleton when compared with that of the last-mentioned bird. I have, however, not the means of making such a comparison, never having seen any part of the skeleton of the *Balæniceps*. Even of the skeletons of the *Scopus* and the *Cancroma* I have only more or less imperfect skulls and some few bones at hand. I should, therefore, only wish to mention here, that the interorbital septum is entire in the *Scopus* (as it is in *Leptoptilos* and *Tantalus*), but perforated (as far as I can see, in the mutilated skull now before me) by a large opening in the *Cancroma* as well as in the Herons; and that the zygomatic arch, formed by the malar bones, is longer in the Boatbill than in the *Scopus*,—so much so indeed, that in the shorter skull of the first it is nearly twice as long as it is in the longer skull of the *Scopus*—this bird approaching even in this respect to the Storks, while the Heron type prevails in the *Cancroma* even in this point. It would be very interesting to know how the *Balæniceps* is shaped in these respects *.

And now, to put an end to my cursory remarks, I shall beg only to advance, as the final conclusion to which I have been led by my examination of the *Balæniceps*, that this most curious bird should be removed from the neighbourhood of the *Cancroma*, to constitute, together with the *Scopus*, a small, exclusively African subfamily in the great circle of the *Ardeidæ* of Leach, appoaching nearer to the Storks than to the Herons.

5. Description of a New Species of Hornbill from Western Africa. By John Gould, F.R.S., etc.

Toccus hartlaubi, Gould.

All the upper surface, back, wings, and tail uniform dark brownish-black, glossed with green; three outer tail-feathers on each side tipped with white, the inner one of the three less so than the others; under surface sooty-black, each feather fringed with grey, giving these parts, particularly the abdomen, a mottled appearance; under surface of the shoulder greyish-white; basal portion of the inner webs of the primaries silvery-grey; bill rather stout and deep at the base, with a small sharp keel or ridge near the base of the culmen; basal three-fourths of the bill black, apical fourth obscure blood-red.

Total length, 14 inches; bill, $2\frac{1}{2}$; wing, 6; tail, $6\frac{3}{4}$; tarsi, 1.

At first sight, the specimen from which the above description was

* My friend Mr. A. Newton, to whom I had communicated my opinion with regard to the *Balæniceps* during his visit to Copenhagen last year, has lately informed me that the malar bones are enormously large and strong in this bird; the same cannot be said of them in *Scopus*.

taken, and which is the only one I have seen, would appear to be immature; but when the tail-feathers are closely examined, they will be found to comprise both old and new feathers of precisely the same character, proving that such cannot be the case. In the size of its body this new Hornbill does not exceed the common Blackbird (*Merula vulgaris*); it must therefore be regarded as one of the smallest members of its group.

I have named this bird *hartlaubi*, in honour of my friend Dr. Hartlaub of Bremen, a gentleman who has paid great attention to general ornithology, but especially to that of Western Africa, where this bird is believed to have been procured, but from what precise locality is unknown.

6. Description of a New Species of the Genus Moho, of Lesson. By John Gould, F.R.S., etc.

Moho apicalis, Gould.

Opposite page 357 of Dixon's 'Voyage round the World,' published as long back as 1798, will be found the figure of a bird under the name of the "Yellow Tufted Bee-eater," which appears never to have received a specific appellation: this has probably arisen from the circumstance of no examples having yet found their way into our museums. The description given by Captain Dixon, copied from Latham's 'Synopsis,' doubtless has reference to the bird which my late friend M. Temminck called *Moho fasciculatus*.

Two examples of this curious bird, male and female, which will hereafter be deposited in the National Collection, having lately come into my possession, I avail myself of the opportunity of characterizing the species, and have assigned to it the name of *apicalis*, from the circumstance of all but the two middle tail-feathers being tipped with white; in which respect Capt. Dixon remarked that the bird he had figured differed from Latham's description of the Yellow-tufted Bee-eater.

Dixon's bird was obtained at Owhyhee, and I believe that my two specimens were brought from the same island.

This bird may be described as having the general plumage sooty-black; tail brown, all but the two middle feathers largely tipped with white; the two central feathers somewhat narrower than the others, and gradually diminishing in the apical third of their length into fine hair-like or filamentous upturned points; axillæ or under surface of the shoulder white; flanks and under tail-coverts bright yellow; bill and legs black.

Total length, 12 inches; bill, $1\frac{1}{2}$; wing, $4\frac{3}{4}$; tail, $6\frac{3}{4}$; tarsi, $1\frac{1}{2}$.

The plumage of the female is in every respect similar to that of the male; but, as in the Honeyeaters of Australia generally, particularly amongst the members of the genus *Ptilotis*, the body is fully a fourth less in size.

7. Description of a new Odontophorus. By John Gould, F.R.S., etc.

Odontophorus melanonotus, Gould.

Throat, fore part of the neck, and chest rich chestnut-brown ; abdomen deep blackish-brown, very finely but obscurely freckled with chestnut ; lower part of the abdomen, thighs, under tail-coverts, tail, back of the neck, wings, and rump uniform velvety brownish-black ; legs apparently horn-colour in front, with a wash of orange between the scales ; bill black.

Total length, 10 inches ; bill, $\frac{7}{8}$; wing, 6 ; tail, $2\frac{1}{2}$; tarsi, $2\frac{1}{8}$.

Hab. Ecuador.

There do not appear to be any markings about the face, as is usual with the other members of this genus ; but as my specimen is somewhat injured in that part, I am unable to speak positively on this point : the orange colouring, too, between the scales of the legs may or may not be natural ; it is probably due to some extraneous cause.

This new species, which I have received direct from Ecuador, is in every respect a typical *Odontophorus*, and is very nearly allied to *O. nigrogularis*, *O. erythrops*, and *O. hyperythrus* ; but when the four species are seen together, their specific distinctness is very readily apparent.

When shall we acquire a knowledge of the whole of this group of birds ?

8. Catalogue of the Birds of the Falkland Islands. By Philip Lutley Sclater, M.A., Secretary to the Society.

(Aves, Pl. CLXXIII.)

Mr. Leadbeater having kindly invited me to examine a very fine series of skins collected in the Falkland Islands by Capt. Pack—a gentleman who has been for several years resident there—I have embraced the opportunity of drawing up a more complete list of the birds of the Falklands than any that has hitherto appeared, chiefly with the hope of inducing Capt. Abbott, Capt. Pack, and other gentlemen who have turned their attention to the ornithology of these islands, to continue their researches, by showing them that we endeavour at home to make some use of the "raw material" with which they provide us.

The Falkland Islands were visited by many of the earlier navigators ; and several species of birds belonging to its fauna, discovered by them, either on the islands themselves, or on the neighbouring coast of South America, are included in the Systems of Linneus, Gmelin, and Latham. The French Exploring Expedition of the 'Uranie,' which was wrecked on these islands in 1819, collected many specimens of birds there, and MM. Quoy and Gaimard, who wrote the 'Zoology' of the voyage, described several new species which were the results of their investigations. But it is to Mr. Darwin, who

M & N Hanhart imp

CHLOEPHAGA RUBIDICEPS

passed some time in the Falklands, when Naturalist on board H.M.S. Beagle, that we are indebted for the first detailed account of the birds of this group. In the second volume of the 'Zoology' of the Voyage of the Beagle, which is devoted to Ornithology, upwards of 20 species are recorded as having been obtained in the Falklands on this occasion, and many very interesting details are given of their habits and localities. Many specimens of birds were also collected at the Falkland Islands by the officers of H.M. Ships Erebus and Terror during the Antarctic Expedition; and though the 'Zoology' of that voyage has, unfortunately, never been completed, the localities of many of the specimens have been recorded in the Lists of the British Museum, in which they were deposited.

In the First Part of our 'Proceedings' for the past year *, Mr. Gould has described the eggs of some of the birds of the Falklands, "from specimens collected principally by Captain C. C. Abbott." Mr. Gould's list notices 38 species as occurring in the group. Reference to some other authorities, together with Capt. Pack's series, has enabled me to raise the number of birds now well ascertained to be met with in these islands to 57.

It may be remarked that the fauna of the Falklands is purely South American in character, the whole of these 57 species, with four or five exceptions only (*Milvago australis*, *Phrygilus melanoderus*, *P. xanthogrammus*, *Cinclodes antarcticus*, and *Muscisaxicola macloviana*), as far as is hitherto known, being also found on the neighbouring mainland, and these excepted species belonging to South American genera. Out of the 57 species, 16 only are what are generally termed Land-birds (*Accipitres* and *Passeres*), the remainder being *Grallæ* and *Anseres*.

I. Accipitres.

1. Cathartes aura (Linn.): Darwin, Zool. Voy. Beagle, p. 8; Gould, P. Z. S. 1859, p. 93.

"Tolerably common" (Darwin). Specimens sent by Capt. Pack and Capt. Abbott. The egg figured in 'The Ibis,' vol. ii. pl. 1. fig. 2, as that of a rare variety of *Milvago australis*, belongs to this bird (see Capt. Abbott in 'Ibis,' 1860, p. 432), so that it breeds in the Falklands. Mr. Gurney informs me that the skins sent by Capt. Abbott are not, in his opinion, different from North American specimens.

2. Milvago australis (Gm.).—*Falco leucurus*, Forster, MS.—*Milvago leucurus*, Darw. Zool. p. 15; Gould, P. Z. S. 1859, p. 93; Sclater, Ibis, 1860, p. 24 (cum fig. ovi).

"Exceedingly numerous, and very bold and rapacious" (*Darwin*). Specimens sent by Capt. Pack. The egg of this bird is figured in 'The Ibis,' as above referred to, from examples transmitted by Capt. Abbott.

* Proc. Zool. Soc. 1859, p. 93.

3*. Buteo erythronotus (King).—*Haliaëtus erythronotus*, King, Zool. Journ. iii. 424.—*B. tricolor*, Lafr. et d'Orb.; Darw. Zool. p. 26; Gould, P. Z. S. 1859, p. 93; Sclater, Ibis, 1860, p. 25 (cum fig. ovi).

"Preys chiefly on rabbits" (*Darwin*). Specimens sent by Capt. Pack and Capt. Abbott, and eggs also by the latter, as described by Mr. Gould, and figured in 'The Ibis.' There is an extraordinary degree of variation in the plumage of this bird, and its phases of change are not yet well understood.

4. Buteo varius, Gould, P. Z. S. 1837, p. 10; Cassin, Rep. U. S. Expl. Exp. viii. p. 92. pl. 3. f. 1; Gould, P. Z. S. 1859, p. 94.

Examples transmitted by Capt. Abbott, as also of the egg, as described by Mr. Gould. Mr. Gurney, who has placed some of these specimens in the Norwich Museum, considers this to be a good species.

5. Circus cinereus, Vieill. Nouv. Dict. iv. 454; Darw. Zool. p. 30.—*Falco histrionicus*, Q. et G. Voy. Uranie, p. 95.

"Very tame, and preys on small quadrupeds, molluscous animals, and even insects (*Darwin*)." Specimens transmitted by Capt. Pack.

6. Otus brachyotus (Gm.).—*Otus palustris*, Darwin, Voy. p. 33; Gould, P. Z. S. 1859, p. 94.

"Amongst low bushes" (*Darwin*).

II. Passeres.

Fam. Turdidæ.

7. Turdus falklandicus, Quoy et Gaim. Voy. Uranie, p. 104; Darwin, Zool. p. 59.—*Turdus magellanicus*, King: Gould, P. Z. S. 1859, p. 94.

Falkland Islands (*Abbott and Pack*).

Eggs described by Mr. Gould, *l. c.* The skins from the Falkland Islands seem to me to be rather larger and more rufescent below than those which I have examined from the mainland.

Fam. Troglodytidæ.

8. Cistothorus platensis (Gm.): Pl. Enl. 432: *Sylvia platensis*, Gm. et Lath.; Darwin, Voy. p. 75.

Not uncommon, living close to the ground in the coarse grass (*Darwin*).

Falklands (*Pack*).

Fam. Motacillidæ.

9. Anthus correndera, Vieill. Nouv. Dict. xxvi. p. 491; Enc.

* 3. Buteo poliosoma (Q. et G.).—*Falco poliosoma*, Q. et G. Voy. Uranie, p. 92. pl. 14.

Falkland Islands (*Q. et G.*). A distinct species, unless it be referable to one of the stages of *B. erythronotus* or *B. varius*.

Méth. p. 325; d'Orb. Voy. Ois. p. 225; Darw. Zool. p. 85; Gould, P. Z. S. 1859, p. 95.

"Very common," and "resembles a true *Alauda* in most of its habits" (*Darwin*).

Falklands (*Pack*). Egg described by Mr. Gould.

Fam. Sturnidæ.

10. Sturnella militaris (Gm.), Pl. Enl. 113: *Sturnus militaris*, Gm.; Darw. Zool. p. 110; Gould, P. Z. S. 1859, p. 94.

Falklands (*Pack*). Nest and eggs sent by Capt. Abbott and described by Mr. Gould.

Fam. Fringillidæ.

11. Phrygilus melanoderus (Quoy et Gaim.).—*Emberiza melanodera*, Q. et G. Voy. Uranie, Zool. i. p. 109. — *Chlorospiza melanodera*, G. R. Gray, in Darw. Zool. Beagle, p. 95. pl. 32.—*Melanodera typica*, Bp. Consp. p. 470; Gould, P. Z. S. 1859, p. 95.

Falkland Islands, "abundant in large scattered flocks" (*Darw.*); Capt. Pack has sent examples of both sexes. Nest and eggs, forwarded by Capt. Abbott, are described by Mr. Gould.

12. Phrygilus xanthogrammus (G. R. Gray).—*Chlorospiza xanthogramma*, G. R. Gray, in Darw. Voy. p. 96. pl. 33.

Falkland Islands (*Darwin*). Distinguished from the preceding by the yellow superciliaries and white markings of the tail-feathers. More examples are wanted to confirm this species.

Fam. Dendrocolaptidæ.

13. Cinclodes vulgaris (Lafr. et d'Orb.): Voy. Am. Mér. Ois. pl. 57. f. 1; Bp. Consp. p. 214.—*Opetiorhynchus vulgaris*, Darw. Voy. Zool. p. 66.

Common in the Falkland Islands (*Darwin*).

14. Cinclodes antarcticus (Garn.); Bp. Consp. p. 214.—*Furnarius fuliginosus*, Less.—*Opetiorhynchus antarcticus*, Darwin, Voy. Zool. p. 67.

Falkland Islands (*Darwin and Pack*).

Probably peculiar to the Falklands, being replaced on the continent by *C. patachonicus*.

Fam. Pteroptochidæ.

15. Scytalopus magellanicus (Lath.).—*Sylvia magellanica*, Lath.—*Scytalopus fuscus*, Gould; Jard. and Selb. Ill. Orn. n. s. pl. 19.

Falkland Islands (*Darwin*).

Fam. Tyrannidæ.

16. Muscisaxicola macloviana (Garn.); Bp. Consp. p. 197; Darwin, Voy. Zool. p. 83.

Falkland Islands (*Lesson and Darwin*). Peculiar to the Falklands, if distinct from the continental *M. mentalis*.

III. Grallæ.

Fam. Chionididæ.

17. Chionis alba, Forst.; Lath. G. H. ix. pl. 161; Darwin, Zool. p. 118; Q. et G. Voy. Uranie, p. 131. pl. 30.

Berkeley Sound, E. F. (*Ant. Exp.*); Falkland Islands (*Q. et G.*).

M. de Blainville has given an elaborate account of the osteology and anatomy of this bird in the 'Zoology' of the Voyage of the Bonite (p. 107 *et seq.*). Its nearest ally appears to be *Hæmatopus*.

Fam. Charadriidæ.

18. Eudromias urvillii (Garn.).—*Tringa urvillii*, Garnot.—*Vanellus cinctus*, Less.—*Charadrius rubecola*, Vig.—*Squatarola cincta*, Jard. and Selb. Ill. Orn. pl. 110; Darwin, Zool. p. 126; Gould, P. Z. S. 1860, p. 95.

Falkland Islands, frequenting the upland marshes (*Darwin*); Falklands (*Pack*); Berkeley Sound (*Ant. Exp.*).

The female is like the male, but with less rufous on the breast. Called 'Dottrel.' The eggs transmitted by Capt. Abbott are described by Mr. Gould, *l. c.*

19. Ægialites falklandicus (Lath.).—*Charadrius falklandicus*, Lath. Ind. Orn. ii. 747.—*Hiaticula falklandica*, G. R. Gray, List of Spec. iii. p. 71.—*Charadrius annuligerus*, Wagl.

Mus. Brit., ex ins. Falkland.

St. Louis, East Falkland, and Uranie Bay (*Ant. Exp.*). Specimens sent by Capt. Pack.

20. Hæmatopus leucopus, Garnot.—*H. luctuosus*, Cuv.

East Falkland (*Pack*). Egg in Mr. O. Salvin's collection, from Capt. Abbott.

21. Hæmatopus ater, Vieill. Gal. Ois. ii. pl. 230 (part.).—*H. niger*, Q. et G. Voy. Uranie, p. 129. pl. 34, et Cuv. (part.), nec Pallas.—*H. ater*, Cassin, Report B. N. America, p. 200.—*H. townsendii*, Aud.—*H. unicolor*, Gould, P. Z. S. 1859, p. 96.

Falklands (*Abbott and Pack*). Egg described by Mr. Gould.

There appear to be several nearly allied species of Black Oyster-catchers inhabiting different regions:—

1. *H. niger*, Pallas (*H. bachmanni*, Aud.), Rep. B. N. Am. p. 700: from the north-western coast of America and Kurile Islands.

2. *H. ater*, Vieill. (as identified by Mr. Cassin): from Southern America and Falklands.

3. *H. fuliginosus*, Gould, B. Austr. vi. pl. 8: from Australia.

4. *H. unicolor*, Forster ; G. R. Gray, Voy. Erebus and Terror, p. 12. pl. 10 : from New Zealand. Perhaps hardly different from the Australian bird.

5. *H. niger*, G. R. Gray, Gen. B. pl. 146 (nec Pallas) : from the Cape.

Fam. Scolopacidæ.

22. Limosa hudsonica (Lath.).—*Scolopax hudsonica*, Lath. Ind. Orn. ii. 720 ; Darw. Voy. Zool. p. 129.
Falkland Islands (*Darwin and Pack*).

23. Numenius brevirostris, Licht. Verz. d. Doubl. p. 75.
Falklands (*Pack*).

24. Gallinago magellanicus (King).—*Scolopax magellanica*, King, Zool. Journ. iv. p. 93 ; Darw. Zool. p. 131.
Falkland Islands (*Darwin and Pack*) ; Berkeley Sound, E. F. (*Ant. Exp.*).

25. Tringa bonapartii, Schlegel, Rep. N. Am. Birds, p. 722. —*Tringa schinzii*, Bp.
Falklands (*Pack*).

Fam. Ardeidæ.

26. Nycticorax gardeni (Jard.).—*N. americana*, Bp. ; Gould, P. Z. S. 1859, p. 96.
Berkeley Sound, E. F. (*Ant. Exp.*) ; Falklands (*Pack*).

IV. Anseres.

Fam. Anatidæ.

27. Chloëphaga magellanica (Gm.). — *Anas magellanica*, Gm. ex Pl. Enl. 1006 ; Eyton, Mon. Anat. p. 32.—*Anas picta*, Gm. et Forst.—*Bernicla magellanica*, Gay, Fauna Chilena, et Cassin in Gilliss's Exp. ii. p. 201. pl. 24 (♂ et ♀) ; Darwin, Voy. Zool. iii. p. 134 ; Sclater, P. Z. S. 1857, p. 128, et 1858, p. 289.
Falkland Islands (*Darwin, Gov. Moore, Pack*).
The "Upland Goose" was first received by this Society from the Falkland Islands in 1857, through the liberality of H. E. Captain Moore, R.N., then the Governor. Other examples have since been obtained, and we now possess three males and five females of this beautiful species. One of the females laid this spring, but did not succeed in hatching her eggs.

28. Chloëphaga rubidiceps, sp. nov. (Pl. CLXXIII.)—*B. inornata*, G. R. Gray, Zool. Voy. Erebus and Terror, Birds, pl. 24, and Sclater, Guide to Gardens of the Zoological Society, ed. 5 & 6, p. 16 : nec King.
Ochracescenti-rubida, dorso superiore, collo undique cum pectore

et ventris lateribus lineis nigris transversim fasciolatis : uropygio cum cauda æneo-nigricante : alis albis, primariis obscure fusco-nigris, tectricibus majoribus et scapularibus cinerascenti-fuscis, illarum pogoniis externis extus læte æneo-viridibus : rostro nigro, pedibus nigris, extus sordide aurantiacis.

Long. tota 17·0, alæ 13, caudæ 4·75, tarsi 2·4, rostri a rictu 1·3.

Hab. In ins. Falklandicis (*Pack*).

Mus. Brit., ex expeditione Antarctica.

This Goose, of which the Society now possesses living specimens of both sexes, is most nearly allied to the Ashy-headed Goose (*Chloëphaga poliocephala*), which has likewise been called *Bernicla inornata* by Mr. G. R. Gray, and is figured under that name in his 'Genera of Birds,' pl. 165. As in the Ashy-headed Goose, the male and female of the Ruddy-headed Goose (as I propose to term this bird) are coloured alike. The bird described as "*Anas inornatus*, mas," by Capt. King (Proc. Comm. Zool. Soc. i. p. 15), which is now in the British Museum, is decidedly different, in my opinion, from both *Chloëphaga poliocephala* and *C. rubidiceps*, most nearly resembling the male of *C. magellanica*, but being much smaller. The bird described as "*Anas inornatus*, fœm.," by Capt. King, is probably *C. poliocephala*. Specimens of this latter bird in the British Museum are from the island of Chiloe, and it appears to be the western representative of the present species.

Chloëphaga rubidiceps may be easily distinguished from *C. poliocephala* by the following characters:—The whole head and neck, which are ash-coloured in the latter, are, in the former, of a uniform buffy rufous: the transverse lineations on the body are much coarser and more numerous in *C. rubidiceps*, and the ground-colour is pale ochraceous rufous instead of deep chestnut. In *C. poliocephala* the belly is pure white, in *C. rubidiceps* it is deep rufous, and the sides of the belly are barred with pale rufous and black instead of white and black. The wings are coloured alike in the two species, and the rump and tail in both is of a uniform black, with dull greenish reflections. The under tail-coverts in both are reddish-brown, rather darker in *C. rubidiceps*. In both species the bill is black, and the legs black, with the outside of the tarsus and outer edge of the toes orange, giving them a singular parti-coloured appearance in the living bird. The size, dimensions, and general characters are, as nearly as possible, the same in both species.

29. Bernicla antarctica (Gm.). — *Anas antarctica*, Gm.; Darwin, Zool. Beagle, iii. p. 134; Cassin in Gilliss's Exp. ii. p. 200. pl. 23 (♂ et ♀).

Falkland Islands (*Darwin, Ant. Exp., Pack*).

30. Cygnus nigricollis (Gm.).—*Anas nigricollis*, Gm.

Falkland Islands (*Pack*).

31. Cygnus coscoroba (Mol.).—*Anas coscoroba*, Mol.—*Cygnus anatoides*, King.

Falkland Islands (*Pack*).

32. Mareca chiloensis (King).—*Anas chiloensis*, King, P.Z.S. 1831, p. 15; Eyton, Mon. Anat. pl. 21.
Falkland Islands (*Ant. Exp.*).

33. Dafila urophasianus (Vig.). — *Anas urophasianus*, Vig. Zool. Journ. iv. 357; Eyton, Mon. Anat. pl. 20 (?).
A pair of Pintails in Capt. Pack's collection are *possibly* of this species in winter dress; but they do not agree with the figure of Mr. Eyton, being nearly white below, and having the sides of the head *under* the eyes closely freckled.

34. Pœcilonetta bahamensis (Linn.).
One example, sent by Capt. Pack; but the bird is said to be rarely met with in the Falklands.

35. Anas cristata, Gm. S. N. i. 540.—*Anas pyrogaster*, Meyen.
Berkeley Sound, E. F. (*Ant. Exp.*); Falkland Islands (*Ant. Exp. and Pack*).

36. Querquedula creccoïdes (King). — *Anas creccoides*, King, Zool. Journ. iv. p. 99; Eyton, Mon. Anat. p. 128.
S. Salvador Bay, E. F. (*Ant. Exp.*); Falkland Islands (*Pack*).

37. Querquedula versicolor (Vieill.). — *Anas versicolor*, Vieill. Nouv. Dict.—*A. maculirostris*, Licht.—*A. fretensis*, King; Jard. and Selb. Ill. Orn. pl. 29.
Falklands (*Pack*).

38. Querquedula cyanoptera (Vieill.).—*Anas cyanopterus*, Vieill. Nouv. Dict.—*A. cæruleata*, Licht.—*A. rafflesi*, King, Zool. Journ. iv. 97; Jard. and Selb. Ill. Orn. n. s. pl. 23.
Falklands (*Pack*).

39. Micropterus cinereus (Gm.).—*Anas cinereus*, Gm. S. N. i. 506.—*A. brachyptera*, Lath.; Q. et G. Voy. Uranie, pl. 39. p. 139. —*Micropterus brachypterus*, Darwin, Zool. Beagle, iii. 156.
Falkland Islands (*Ant. Exp. and Pack*).
"Loggerhead Duck: male with the bill orange, irides dark brown, feet olive; female the same, but the bill olive." (*Pack.*)

Fam. Colymbidæ.

40. Podiceps calipareus, Less. Voy. Coq. Zool. p. 727, Ois. pl. 45; Darwin, Zool. Beagle, iii. p. 136.
S. Salvador Bay, E. F (*Ant. Exp.*); Falkland Islands (*Pack*).
"White Grebe: eye bright crimson" (*Pack*).

41. Podiceps rollandi, Q. et G. Voy. Uranie, Zool. p. 133. pl. 36; Darwin, Zool. Beagle, iii. p. 137.
Berkeley Sound, E. F. (*Ant. Exp.*); Falklands (*Pack*).
"Common Grebe or Black Grebe: eye bright crimson" (*Pack*).

Fam. Aptenodytidæ.

42. Aptenodytes pennantii, G. R. Gray, Ann. N. H. xiii. p. 315 (1844).—*A. patachonica*, Shaw; Gould, P. Z. S. 1859, p. 98.
Falkland Islands (*Abbott and Pack*).

43. Spheniscus magellanicus (Forst.). — *Aptenodytes magellanicus*, Forst.—*A. demersa*, Abbott, Ibis, 1860, p. 336 (*err.*).
Falkland Islands (*Abbott and Pack*).

44. Eudyptes chrysolophus, Brandt: Abbott in Ibis, 1860, p. 338.
Falkland Islands (*Abbott and Pack*).

45. Eudyptes chrysocome (Forst.).—*Aptenodytes chrysocome*, Forst.: Abbott, Ibis, 1860, p. 337.
Falkland Islands (*Ant. Exp., Pack*).

46. Pygosceles wagleri.—*Pygosceles papua*, Wagl.—*Aptenodytes papua*, Forst.; Abbott, Ibis, 1860, p. 336; Gould, P. Z. S. 1859, p. 98.
Falkland Islands (*Mus. Brit., Abbott, Pack*).
The name *papua* generally applied to this bird requires alteration, as the bird is not found in New Guinea!

Fam. Procellariidæ.

47. Pelecanoides berardi (Q. et G.).—*Procellaria berardi*, Q. et G. Voy. Uranie, p. 135. pl. 37; Gould, P. Z. S. 1859, p. 98.
Falkland Islands (*Q. and G., and Abbott*).

48. Thalassidroma nereis, Gould, B. Austr. vii. pl. 64, et P. Z. S. 1859, p. 98.
Falkland Islands (*Abbott*). One specimen, picked up dead in March 1858.

49. Procellaria ——?
Capt. Abbott has forwarded eggs of a large species of Petrel from the Falklands, belonging, as Mr. Gould believes, either to *P. gigantea* or *P. conspicillata*.

50. Diomedea ——?, Gould, P.Z.S. 1859, p. 98.
Mr. Gould has described the egg of an Albatros sent by Capt. Abbott, which he believes to be either of *D. fuliginosa* or *D. melanophrys*.

Fam. Laridæ.

51. Lestris antarctica (Less.).—*L. catarractes*, Q. et G. Voy. Uranie, Ois. pl. 38.—*Megalestris antarctica*, Gould, P. Z. S. 1859, p. 98; Abbott, Ibis, 1860.
Falkland Islands (*Abbott and Pack*).

52. Larus dominicanus, Licht. Verz. d. Doubl. p. 82; Gould, P. Z. S. 1859, p. 97.
Falkland Islands (*Abbott and Pack*).

G.H Ford

Pagrus bocagii, *Cthr*

W West imp

53. Larus scoresbii, Trail, Mem. Wern. Soc. iv. p. 514 (cum fig.) 1823.—*L. hæmatorhynchus*, King; Jard. and Selb. Ill. Orn. pl. 106.
Falkland Islands (*Pack*).

54. Larus roseiventris (Gould).—*L. glaucotes*, Meyen, Nov. Act. 1834, p. 115 (?).—*Larus maculipennis*, Licht. (?).—*Gavia roseiventris*, Gould, P. Z. S. 1859, p. 97.
Falkland Islands (*Abbott and Pack*).
There is no doubt, I think, that Mr. Gould's type-specimen, now in the British Museum, is in immature (or winter) plumage. The adult bird in full breeding-dress, of which Capt. Pack has forwarded some splendid specimens, has a full dark-brown cap, and the whole of the white plumage deeply tinged with a most beautiful rose-colour. The egg is described by Mr. Gould, *l. c.*

55. Sterna cassinii, Sclater.—*Sterna meridionalis*, Cassin, Zool. U. S. Expl. Exp. p. 385, nec Brehm.—*Sterna antarctica*, Peale, nec Lesson, nec Forster.—"*Sterna wilsoni* et *S. hirundo*, ex Am. Merid.," auct.
Falkland Islands (*Pack*, *Abbott*).
This Tern is stated by Mr. Cassin and Mr. Peale to be different from *S. wilsoni* of the United States. "The voice, size, and general habits are so like those of its northern prototypes, *S. arctica* and *S. hirundo*, that it requires comparison to be convinced of the specific difference. But the intensely scarlet bill, which has not a black point like that of the northern bird, the lighter-coloured mantle, and the length of the tarsus destroy their identity."
Unfortunately both Mr. Cassin and Mr. Peale have proposed names for this bird which have been previously used in the same group.

Fam. Pelecanidæ.

56. Phalacrocorax caruncolatus (Gm.); Bp. Consp. ii. p. 176.—*P. imperialis*, King.—*P. cirrhatus*, G. R. Gray.
Falkland Islands (*Pack*, *Abbott*).

57. Phalacrocorax magellanicus (Gm.); Bp. Consp. ii. p. 177.—*P. erythrops*, King.
Falkland Islands (*Pack*, *Abbott*).

9. On a New Species of Fish belonging to the Genus Pagrus. By Dr. Albert Günther.

(Pisces, Pl. XI.)

Pagrus bocagii, Lowe. (Pl. XI.)

D. $\frac{12}{10}$. A. $\frac{3}{8}$. L. lat. 65. L. transv. 7/17.

The greatest depth of the body is below the fourth dorsal spine, where it is one-third of the total length; the length of the head is

one-fourth of it. The diameter of the eye equals the width of the interorbital space, is one-fourth of the length of the head, and two-thirds of that of the snout. The præorbital is longer than high, and higher than the orbit. There are six series of rather narrow scales between the præorbital and the angle of the præoperculum. Molar teeth in two series,—those of the outer series being conical, pointed, and much larger than those of the inner series. The third, fourth, and fifth dorsal spines are produced, flexible (in immature specimens); the second and third anal spines of nearly equal length and strength, one-third of the length of the head. The pectoral extends on to the vertical from the first soft anal ray, and its length is contained three and a half times in the total; the ventral reaches to the anal fin. Silvery, with red, shining golden stripes along the series of scales; a dark-claret spot on the back beneath the fifth, sixth, seventh, and eighth dorsal rays, extending on the membrane of the fin; a smaller spot on the upper part of the axil; the spinous dorsal, caudal, anal, and ventral fins with the margin blackish.

Length $9\frac{1}{2}$ inches.

Hab. Sea of Lisbon.

This fish forms a new addition to the European fauna. It has been sent to the British Museum by the Rev. R. T. Lowe in a fine collection of fishes made at Lisbon. He proposes to call it after Dr. Bocage, of the Lisbon Museum, in case it should prove to be a new form, and writes:—"It grows very large; I saw one which was 2 feet 10 inches long, and was said to weigh more than 16 lbs. Its head was bright red or vermilion. The elongate dorsal spines are only a conspicuous character in young examples."

10. Description of a New Entomostracous Crustacean, belonging to the Order Phyllopoda, from South Australia. By Dr. Baird, F.L.S., etc.

(Annulosa, Pl. LXXII.)

Estheria birchii. (Pl. LXXII. fig. 1.)

The animal appears in all respects to resemble that of the *Estheria gigas*, except that the eye is placed on a more prominent pedicle. The specimen examined was a female, and full of ova. These were disposed all along the body of the parent, were very numerous, and presented a very pretty appearance when seen under the microscope. They are small, round, and grooved, the grooves running in a circular manner like those of a rifle.

The shell or carapace is of a greenish colour, of an oval shape, and flattened. The umbo is anterior, situated about 2 lines from the margin. The dorsal margin slopes slightly downwards, and is dentated on the edge, in consequence of the ridges, with which its surface is strongly marked, terminating at the external edge in a prolongation or tooth. The ventral margin of the carapace is rounded

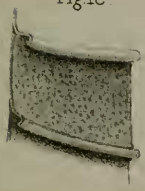

Fig 1c.

Fig 1.

Fig 1d.

Fig 1e.

Fig 1b.

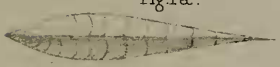

Fig 1a.

Fig 2.

Fig 2a.

Fig 3b.

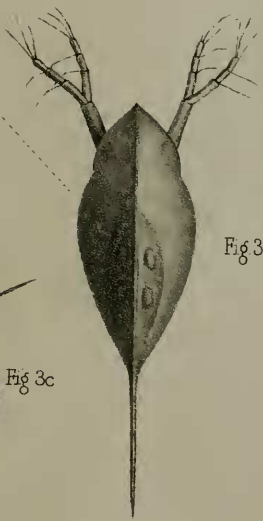

Fig 3a.

Fig 3.

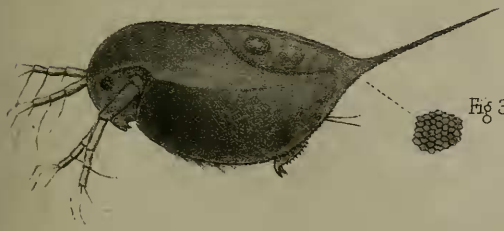

Fig 3c.

Fig 1e Estheria birchii. 2-2a Streptocephalus dichotomus 3-3c Daphnia newportii.

del. & lith.

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Corallium johnsoni

anteriorly, and terminates posteriorly in one of the strong tooth-like prolongations mentioned above.

The surface of the shell is marked with 13 ribs or ridges, which near the umbo are slight, but become stronger, well-marked, and prominent as they descend. The surface between the ridges is different from any previously described; it is rather opake, not polished, and presents somewhat the appearance of ground glass.

This species is the giant of the family to which it belongs. Of the three specimens in the Collection, the largest measures rather more than a full inch in length, and about three-fourths of an inch in breadth, the other two being slightly smaller. They were sent to the British Museum by Sir W. Denison, Governor of Australia, who in a letter to Dr. Gray informs him that they were taken "in water-holes or lagoons on the plains, on the banks of the Wamoi, a river which discharges itself into the Darling, and ultimately by the Murray into the sea in South Australia." They were collected by Mr. W. Birch, who in a note to the Governor says:—"My attention was first drawn to the Bivalves by observing them *in motion*, apparently in search of food; and until a specimen was obtained, I was under an impression, from the rapidity of their movements, that they were small fishes. Undeceived in this respect, I determined to ascertain, if possible, the means by which the mollusk progressed. I observed that the serrated part of the shell was downward and the valves were in constant motion, and that four antennæ were protruded from the shell, evidently for grasping food. The anatomical structure of the animal appeared so much at variance with other mollusks, that I preserved the specimens intact. I found by experience that if the shells are immersed in tepid water for about ten minutes, the animals will be sufficiently developed for minute observation."

In compliance with Sir W. Denison's request that the name of the collector "should be commemorated in connexion with the species," I have named it *Estheria birchii*.

Magnitude, 1 inch in length, $\frac{3}{4}$ of an inch in breadth.

Hab. Pools of fresh water on the banks of Wamoi River, Australia.

Mus. Brit.

11. Description of a New Coral (Corallium johnsoni) from Madeira. By Dr. J. E. Gray, F.R.S., V.P.Z.S., etc.

(Radiata, Pl. XVIII.)

Mr. James Yate Johnson, the author of an admirable 'Guide to the Island of Madeira,' and who has for years been studying the natural productions of that beautiful island for the purpose of preparing a Fauna of it, having kindly given me some specimens of Corals from thence, I am induced to send the following description of a very in-

teresting specimen of this hitherto very limited genus to the Society.

CORALLIUM JOHNSONI. (Pl. XVIII.)

Coral branched, subflabelliform. Branches nearly simple, subparallel, flexuose, with a few very short ascending branchlets scattered on the side of the upper surface. Bark yellow, granular, with three or four rows of rather convex polype-cells on the upper surface of the branches, and with the under side smooth and rounded. The axis white, striated.

Hab. Madeira.

This coral differs from the Red Coral of the Mediteranean and of commerce in several important particulars. That coral, which generally grows from the under-surface of ledges of rocks in a pendent position, has the polypes equally scattered on all sides of its branches, and thus the animal can obtain food with equal facility on all sides of the coral.

The Madeiran coral, on the contrary, seems to grow in a fan-like manner, spreading out horizontally from the rock or other marine body to which it is attached; and it has the animal placed on each side of the upper surface of the stem and branches, as though the animal could only obtain nourishment on that part of the coral which is exposed to the light, or at least is parallel with the surface of the sea.

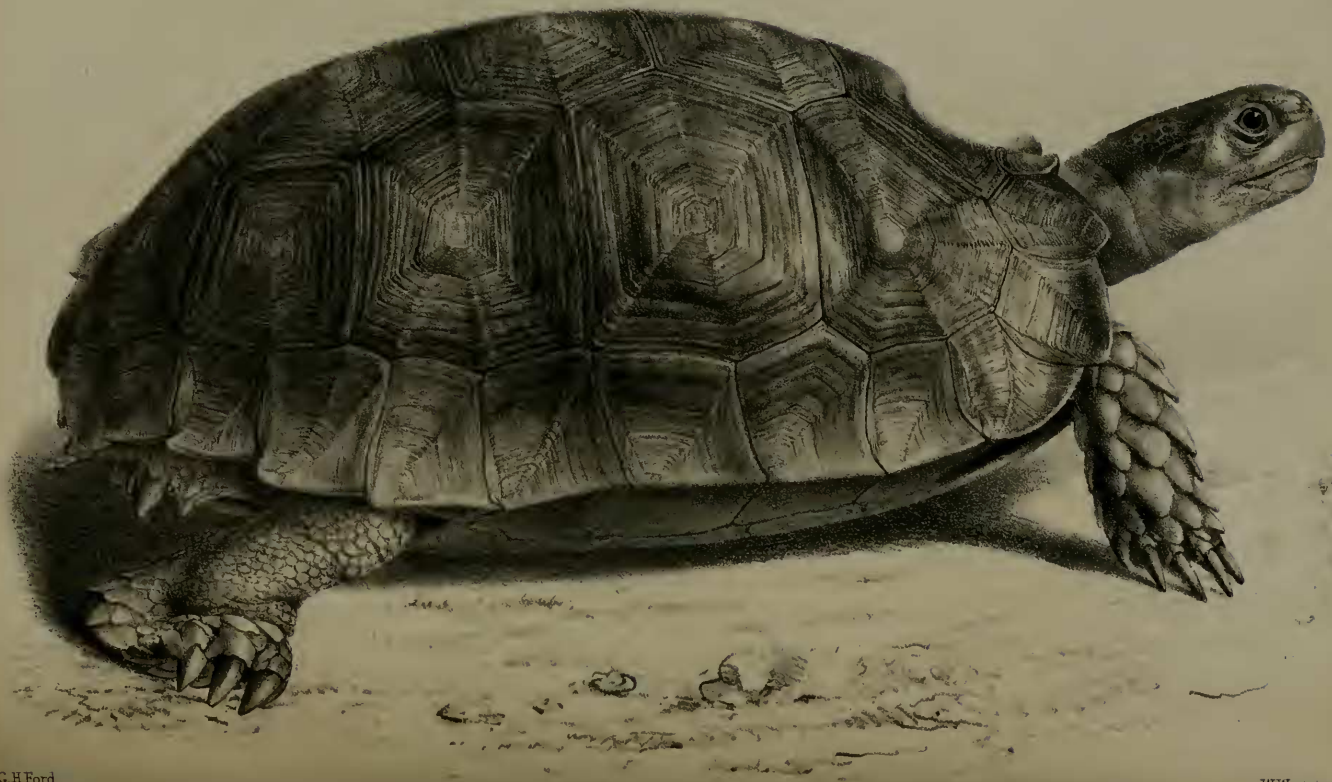
This is the case with many, indeed I may say with all the corals which grow in this expanded, fan-like manner.

There is a species of coral which grows, and has the animal likewise distributed in the same manner, which is found in the seas near the Sandwich Islands, and has hence been called *Corallium secundum* by Mr. Dana, but it is very different from the species here described. The Madeiran coral is easily distinguished from that described by Mr. Dana by the colour of its bark and axes, and the thick, elongated, subsimple, subparallel branches.

Secondly, this Madeiran coral appears to be normally of a white colour, while the Mediterranean coral is of a bright crimson-red, and has hence been called *Corallium rubrum*. The latter is sometimes bleached white, or becomes so from some defect or malady in the animal: it is rarely found naturally white, or more generally with some portion of the coral white. I have never seen it naturally of this colour, but I have seen some specimens with white portions; and I have been informed that these portions have been bleached by the sudden application of heat or some other process. The Madeiran coral, on the contrary, seems to be always white.

The "White Coral" of commerce is a species of *Caryophyllia* of Lamarck.

If this coral could be obtained in any quantity from Madeira, it would be a beautiful object for jewellers, and I have no doubt fetch a good price.



G.H Ford.

W West imp

Manouria fusca.

12. On the Genus Manouria and its Affinities. By Dr. John Edward Gray, F.R.S., V.P.Z.S., etc.

(Reptilia, Pl. XXXI.)

In the 'Proceedings' of this Society for 1852, p. 133, I described, and in the quarto Catalogue of the 'Shield Reptiles in the Collection of the British Museum' I described at greater length and figured, the imperfect shield of a Tortoise which had long been in the possession of the Society, under the name of *Manouria fusca*.

Dr. Cantor, in his 'Catalogue of the Reptiles of the Malayan Peninsula,' describes a specimen of the same Tortoise under the name of *Geoemyda spinosa*, considering it as the adult of that curious and interesting species, and most unjustifiably copies my description of the animal of that Tortoise as that of the animal belonging to the shell which he was describing.

Dr. Cantor sent the specimen here referred to, to the East India Company, and it has passed from them into the Collection of the British Museum, so that there can be no doubt about the identity of the two animals.

Mr. Le Conte, in the 'Proceedings of the Academy of Natural Sciences of Philadelphia' for October 1859, vol. vii. p. 187, describes a Tortoise from Java under the name of *Teleopus luxatus*, which evidently belongs to the same genus, and is probably the same species which I had previously described and figured under the name of *Manouria fusca*.

When I first described the genus from a shell in a very imperfect condition, I referred it to the family *Emydidæ*, on account of its "depressed form and the divided caudal plate."

Dr. Cantor, in the Catalogue above quoted, not only refers it to that family, but considers it a species of the genus *Geoemyda*, and describes the animal as having the feet of that genus, which are provided with strong, separate toes.

Mr. Le Conte seems to have had a perfect animal, for he describes the feet thus:—"Toes and claws 5·5; fore-claw long and rather sharp: hind-feet clavate; claws nearly globular, the inner one wide and flat, the edge sharp-edged:" yet he places the genus *Teleopus*, in his arrangement published in the same volume of the 'Philadelphia Proceedings,' between *Platysternon* and *Lutremys* with the true *Emydes*, observing that "it possesses a strong mixture of the characters of this family with those of the next."

The British Museum has just acquired from Mr. Gould a very fine and perfect specimen of the genus, which he received with a series of skins of Kangaroos and other Australian mammalia and reptiles from Australia, thus enabling me to lay before the Society a completion of the character of the genus before established from the examination of an imperfect specimen of the shell alone, to correct the position of the genus in the order, and to show the geographical arrangement of the single species on which it is founded.

The genus *Manouria* is a typical Land Tortoise (*Testudinidæ*), which verifies the fact stated by Dr. Cantor, that it is "found on

the great hill at Pinang at a distance from water." Like the other genera of that family, it has very short toes on both the hind and fore feet, which are all united together into a club-like foot, with only the claws separate,—very unlike the distinct, more or less webbed toes of the Freshwater Tortoises or *Emydidæ*, with which it has been hitherto united. Its fore-feet are covered with very large, thick, triangular scales, like the feet of the genus *Kinixys*; and it has the spur-like conical scale, situated between the hinder thigh and the base of the tail, which is found in several genera of this family.

It is easily known from all the other genera of the *Emydidæ*, and from the more terrestrial genera of the family, by the small size and position of the pectoral plates and the divided caudal plate.

The pectoral plates in some genera of the Freshwater Tortoises, as in *Kinosternon* and *Sternotherus*, are smaller than the other plates, and narrowed on the inner edge; but I do not know of any genus where they are reduced to such a small size and removed so far towards the outer edge of the sternum as in the one under consideration.

The separation of the caudal plates, which is universal in all the Freshwater Tortoises and Marine Turtles which have come under my examination, is not found in any other genus of Land Tortoises that I am aware of: but in several species of the true *Testudines* there is a more or less distinct groove, showing where the plates are united; and in *Manouria* they are quite separate.

The head is covered with symmetrical small shields. The jaws are crenulated on the edge, without any distinct sharp hook at the top of the upper one. The neck is covered with small granular scales. The fore-feet are depressed, club-shaped, covered with large, thick, triangular, sharp-tipped shields, forming five rather irregular rows on the front or upper surface. The outer side of the under surface and the soles of the fore-feet are covered with large flattened plates. The fore-claws are five in number, large, thick, conical, acute, and nearly of an equal size, the outer one being rather the smallest. The hind-feet are large, with four very large, strong, conical, acute claws, the outer one on each foot being rather smaller than the others, which are all of equal size. The soles of the hind-feet are covered with large unequal-sized scales—those on the hinder edge being largest, thick, conical, trihedral, and prominent.

On each side of the hinder part of the body, near the tail, is a group of large triangular scales,—the hindermost, nearest the base of the tail, being very large, conical, and prominent, forming a large spur.

Tail short, conical, with three rows of flat shields above, and three or four rows of squarer, smaller ones beneath.

The *Manouria fusca* appears to inhabit Pinang, where Dr. Cantor says it is "found on the great hill at Pinang at a distance from water;" also Java, as I cannot discover from Mr. Le Conte's description that there is any specific difference between his *Teleopus luxatus* and my species from Pinang; and likewise Australia, for the specimen which we have received from Mr. Gould is marked the "Murray River Tortoise," and it came with a collection of the skins of mammalia and reptiles which are all Australian. There is very little difference

between the three specimens of this Tortoise which we have in the British Museum Collection, two of them from Pinang and the other from Australia. They vary a little in the size and form of the pectoral plates, and in the size of the axillary and inguinal plates, but not more than is the case with other Tortoises of the same species.

13. Descriptions of Seventeen New Species of Marine Shells, from the Sandwich Islands, in the Collection of Hugh Cuming. By W. H. Pease.

1. Vitularia sandwicensis, Pease.

Shell fusiformly ovate, rather thin, white, with about three transverse rows of brown spots on varices; whorls five, sharply angulated, body-whorl angulated just below the suture; varices six, slightly oblique, wrinkled; aperture white, oblong-ovate, outer lip denticulated within; columella slightly arched; canal short.

2. Ranella producta, Pease.

Shell solid, small, depressly pyramidal, sublanceolate, ribbed longitudinally, ribs overlapping at the sutures, and cancellated by transverse granulose ridges, lateral varices compressed, arranged like the ribs by overlapping; aperture small, oval, coarsely lyrate within; canal short, recurved; colour chalky-white.

3. Ranella luteostoma, Pease.

Shell ponderous, solid, ovately turreted, varices prominent, nodulous and canaliculated; spire consisting of about six angulated whorls, girdled with a close series of granular belts, the upper and lower generally the most prominent, and the angle traversed by a row of bipartite nodules, which latter are continued on the upper third of the body-whorl; body-whorl angulated above, beaded like the spire, and beneath the bipartite nodules are alternate series of granular belts and obsolete raised lines, four rows of the former and five of the latter; columella arched, closely wrinkled, wrinkles more distant and larger at the extremities; outer lip much thickened, flat and coarsely denticulated within; aperture oval, canaliculated at both extremities; colour pale-yellow, variegated with more or less distinct transverse articulated brown lines, lips yellow passing into white within the throat, denticulations and the upper and lower wrinkles on the columella white.

4. Distorsio pusilla, Pease.

Shell solid, oblong ovate, gibbous, somewhat distorted, four or five varices; whorls beatifully latticed, with rather coarse granular raised ridges and fine microscopic spiral striæ; aperture small, narrow; outer lip thick, strongly dentated on inner edge and sinuated above; columella deeply excavated and plicately toothed; canal short.

Only a single specimen has been found, too much faded to determine its colour. It is pale yellow, with faint traces of brown.

5. Conus neglectus, Pease.

Shell solid, slightly swollen above, orange-brown, girdled with a white belt on the middle and an obsolete one at the superior angle, base purple-black; surface faintly decussately striated, lower half with small spiral ridges; spire depressed, its profile very slightly convex; aperture narrow and straight, interior white, tinged with orange on the edge, and two large deep-purple spots within; epidermis thick, opake, velvety, dusky or fulvous brown.

6. Conus fusiformis, Pease.

Shell small, fusiform, attenuated at both ends, closely and regularly grooved spirally, and reticulated by fine irregular longitudina striæ; spire acuminate, sharp; whorls encircled by two granulose ridges, sutures marginated; aperture narrow, rather more than half the length of the shell; colour dark chocolate-brown, with a row of irregular white spots on upper edge, margin of the sutures light yellowish-brown.

7. Fossar multicostatus, Pease.

Shell small, thin, globose, of a chalky-white colour, spire small, acute, consisting of three or four moderately convex whorls separated by a linear impressed suture; surface ornamented with a nearly uniform series of small, rather sharp spiral ridges, and the interstices decussately striated with fine raised lines, of which the spiral are most developed, periphery of the last whorl rounded and narrowly umbilicated; columella slightly oblique, scarcely arched, covered with a thin callous deposit and slightly sinuous at the base; aperture large, subcircular, lip thin, crenulated by the external spiral ridges.

8. Turris monilifera, Pease.

Shell fusiform, turreted, light brown; whorls numerous, encircled with a row of semitransparent slightly oblong tubercles, disposed in a somewhat imbricated manner, with a prominent keel between and a lighter one just below the rows of tubercles, interstices concave, ornamented with raised striæ, and crossed by oblique lines, last whorl encircled by raised striæ, which are most prominent on upper part; aperture ovate; canal rather long, slightly recurved.

9. Strombus cancellatus, Pease.

Shell solid, abbreviate, somewhat fusiformly ovate; spire short, acute; whorls seven or eight, subangulated above, latticed with longitudinal ribs (or ridges) and spiral lines, margined next the sutures, about three varices to each whorl; sutures well impressed, last whorl irregularly verrucose on the back at the upper part, and latticed like the spire; outer lip thin, slightly thickened behind; columella strongly callused and closely wrinkled throughout; aperture narrow, contracted, lyrate and granulose within.

All the specimens found of this species have had the outer lip fractured and repaired. The nearest allied species is *S. hæmastoma* (Sow.).

10. Amathina bicarinata, Pease.

Shell thin, subpellucid, triangularly ovate, contracted posteriorly; colour vitreous-white; traversed by longitudinal, diverging, irregular-sized ribs, two of which are more prominent than the others, giving the shell a somewhat bicarinated appearance, and crossed by fine, close, concentric lines of growth; spire consisting of one evolution, recurved laterally and projecting beyond the posterior margin of the shell; aperture oval, edges smooth; epidermis thin, membranaceous, covering the entire shell.

11. Coralliobia cancellata, Pease.

Shell small, rather solid, depressly ovate, white; spire concealed by the upper termination of the outer lip; surface coarsely latticed with longitudinal and transverse ridges, the former disposed so as to give the surface an imbricated appearance; columella smooth, very slightly arched, and attenuated below; outer lip widely dilated; aperture large, extending the whole length of the shell.

A singular species, resembling somewhat a minute *Concholepas*, and allied to *R. madreporarum* (Sow.). Only a single dead specimen found.

12. Rhizochilus exaratus, Pease.

Shell abbreviately ovate, deeply umbilicated; spire short, acute, less than one-half the length of the shell; whorls about six, convex, subangulated, the last large and gibbous, encircled with small, close, irregular, minutely scaled ridges and longitudinal ribs, ribs slightly oblique and becoming obsolete or altogether wanting on body-whorl; aperture wide, semicircular, finely and closely lyrate within; outer lip thin; inner lip produced so as to form an even surface with the outer lip, smooth and slightly arched; canal very short and slightly recurved; colour dirty-white.

13. Columbella pellucida, Pease.

Shell elongate-oval, turreted, thin, pellucid, smooth, shining; spire prominent, consisting of six or seven volutions; apex obtuse; whorls smooth, plano-convex, last whorl but slightly swollen, and furnished with close obliquely transverse impressed striæ on the basal half; suture impressed, and margined below with a fine spiral impressed line; aperture about one-half the length of the shell, oblong oval, slightly effuse above; outer lip simple; columella smooth, slightly arched; whitish horn-colour; last whorl ornamented with one or two rows of oblong brown spots and an opake white spot, intermediate rows extending to and encircling the lower part of the upper whorls near the suture.

14. Columbella lineata, Pease.

Shell small, solid, fusiform, turreted, whitish or variously marked with reddish brown; spire acute; whorls plano-convex, smooth, the last somewhat ventricose, and spirally striated at the base; canal produced; sutures faintly impressed; outer lip thickened by a stout

outer varix, and dentated within; columella smooth, strongly arched; aperture small, tortuous.

15. Scalaria millecostata, Pease.

Shell small, pyramidal, white, thin; whorls nine, contiguous, rapidly enlarging, rounded, the last one ventricose and perforated at the base; varices numerous, crowded, appearing like raised lines; sutures deeply impressed; aperture rounded.

16. Scalaria fucata, Pease.

Shell elongate, imperforate, white, with a spiral brown band on the periphery of the whorls; whorls 8–9, rounded, separated and closely decussately striated with fine raised lines; varices 7-8, distant, compressed, rather large, continuous and toothed above; aperture abbreviately oval.

17. Cirsotrema attenuatum, Pease.

Shell small, elongate, solid, imperforate, slightly distorted; spire obtuse; whorls plano-convex, nodulous at the suture, encircled with fine, close spiral lines, upper whorls longitudinally ribbed; varices few, irregular, suture faintly impressed; outer lip thickened by an external varix; aperture oval.

14. Review of the Genus Tenagodus, Guettard. By Otto A. L. Mörch of Copenhagen.

Worm-tubes, with a branchial slit, were figured by Aldrovandus, Buonanni, Rumphius, and Argenville; but this character, either overlooked or regarded as accidental, was first described by the accurate Lister in his 'Historia Conchyliorum,' pl. 548. fig. 2: "Vermiculus fissura quadam secundum volutas insignitus." A porous slit was first described by Linnæus, although Rumphius first figured the same species. Guettard, 1776*, in his, for the time, admirable treatise on 'Worm-tubes,' first recognized the generic value of the slit—a view adopted by Bruguière, Lamarck, and most subsequent authors, under the new name *Siliquaria*, preoccupied by Forskål for a genus of plants.

Lamarck supposed *Tenagodus* to belong to the Annelides. Blainville brought it first, guided by conchological reasons, to the Mollusca, close to *Vermetus*; but erroneously imagined, from the median position of the branchial slit, that it had affinities with the animal of *Fissurella*.

In the year 1829 Audouin† set the question respecting the molluscous nature of the genus at rest; but it was first in 1836 that Philippi, in his 'Enumeratio,' gave a clear description and figure of the animal and its operculum.

Montfort, too, has given some account of the animal; but one part

* Guettard arranged the *Tenagodus*, figured by Davila, pl. 21. f. L, in the genus *Tulaxodes*, because he regarded the *septa* more important than the pores.

† Audouin, Société Philomatique, 1829; Annales des Sciences, 1829; et Rang, Manuel, p. 188.

of his description is taken from an Annelide, and the other part is founded on a fragment of a shell found on the deck after a storm in the Bornean sea—very likely the *Ianthina exigua*, which, like *Siliquarius*, has a deep notch in the lip, and is of about the same diameter as the specimen figured: "Il flotte et nage dans la mer et il enfle son manteau en forme de voile."

Dr. Gray has formed for the genus a section *Siliquarina* in the family *Vermetidæ*. It seems to me to have the same relation to *Vermetus* as *Haliotis* to *Stomax* and *Delphinula*. *Tenagodus* differs principally from *Vermetus* in the operculum, which is spiral like that of *Torinia*, composed of a spiral band ciliated at the margin, forming a cylinder or cone the axis of which is filled up by a series of spiral radiating cells, and which in the last whorl looks like a *Robulina* or *Semen medicoginis* (subgenus *Siliquarius*). In *Siliquaria lactea*, Lam., the axis is filled up with transverse parallel septa without radiating cells (subgenus *Pyxipoma*, Mörch). The marginal spiral band appears composed of radiating bristles, united at their base by corneous matter, only leaving the points free. Dr. Chenu has figured (in his 'Manual,' p. 321, f. 2308*) an operculum quite different from those I have seen, and which, if correct, must belong to a distinct genus, perhaps to the typical *Tenagodi*. The fœtal shell is wanting in all the specimens I have seen, except in *Siliquaria lactea*, where it has the form of *Ampullaria*, the under part of the outer lip being produced, and of a brown colour. Chemnitz has described the young shell as *Helix incisa*, and Brocchi as *Serpula ammonoides*. Sowerby, in his 'Genera,' first showed the real nature of the former, and Bronn of the latter. In the subgenus *Siliquarius* the surface of the shell is curiously fissured transversely in a manner I do not recollect to have seen in any other shell. I am very much inclined to regard this outer layer as a calcareous epidermis, like that of *Lucina pennsylvanica*, *L. tivela*, and *Margaritifera*. In *Siliquarius lacteus* this layer is very little developed. The aperture is round and simple in all the specimens I have seen. Martini has figured (pl. 2. fig. 13 B) a species with the outer lip strongly dentated. Perhaps it is *Siphonium nebulosum*, Dillwyn, with rubbed spines. The slit is wanting in some species in the first whorls; in all it becomes closed more or less with age. In the subgenus *Pyxipoma* it is closed by a lamella, but not filled up outside.

In the fossil species *Siliquaria dubia*, Defr., and *S. lima*, Lam., the slit is very short like that of *Pleurotoma*; in the fossil genus *Agathirses* it appears to be different.

The typical *Tenagodi* seem, according to Rumphius, to live on rocks and corals. The subgenus *Siliquarius* lives always in sponges like *Vulsella*. The only affixed species is the fossil *S. florina*, Defr., figured by Dr. Chenu on *Cerithium giganteum*; perhaps it must form a new genus, if not the young of *Agathirses*, Montfort.

Tenagodus is only found in tropical seas (East and West Indies); *Siliquarius* is subtropical. *Pyxipoma* is found in Australia, the West Indies, and perhaps at the Cape of Good Hope.

* Perhaps copied from Adams's 'Genera.'

The longest species is found in the Mediterranean; the most ponderous at Port Essington (Australia).

DESCRIPTIONES SPECIERUM.

TENAGODUS, Guettard, Mém. 1774, p. 128.

T. in gyris obliquis contorta, substantia dura læviuscula nitida, plerumque squamifera, striis incrementi simplicibus; apertura postice elongata. Animal et operculum ignota.

If the figure of the animal of Audouin (Chenu, Ill. et Leçons) is represented of the natural size, it belongs probably to this genus, as Rang asserts the specimen was brought from the East Indies by Dr. Busseuil of the frigate 'Thetis.' The known species of the following section, *Siliquarius*, from the East Indies, are all of a comparatively small size. Perhaps it may be the *Tenagodus gigas*, Lesson, brought from the Moluccas by 'la Coquille' about the same year. I suppose that Rumphius describes the operculum in the following passage: "*Solen anguinus* van binnen met diergeylk een slymerig Deer, en een getand Mytertye voor in den mond." I suppose that the cilia of the operculum are meant by "getand;" but we cannot depend much on the text of Rumphius, it having been written originally in Latin, and translated after the death of the author into the Dutch language.

1. TENAGODUS ANGUINUS, (*Serpula*) Linn. 1758.

α. *Testa semiadulta, typica.*

Solen anguinus, Rumph. t. 41. f. H.
Serpula anguina, Linn. S. N. ed. 10. p. 700, excl. var. β.
Serpula anguina, var. β, L. Mus. Lud. Ulr. 701. no. 431; Linn. Syst. Nat. ed. 12. p. 147. no. 804.
Tubulus testaceus solitarius, anguinus, p. p., Mart. Conch. Cab. f. 14 (copy).
La Chenille, Favanne, p. 653, t. 6. f. M (copy).
Serpula volvox, Dillw. p. 1079. no. 26 (founded on Favanne); Wood, Index, Serpula, f. 25 (copy).

β. *Testa adulta.* S. muricata, *Born.*

T. albescens pallidissime aurantio tincta; liris 10 parum prominentibus, squamis sparsis ornatis; interstitia lirarum lævigata, rugis transversis distantibus, unde obsolete foveolata, interstitio magno subventrali lirula abrupta; apertura elongato-trigona.
Long. 54 cm., alt. aperturæ 10 mm. (*Mörch*)*.
Serpula muricata, Born, Testacea, p. 446. t. 18. f. 16.
Serpula anguina, β, Born, Index.
Serpula anguina, Shaw, Miscell. xiv. 575 (from Born).
Hab. Moluccas (coll. Cuming). Specimen unicum.

* The length is measured with a string; as the first whorl is always wanting, it is not very exact.

It is evident that Linneus, in the tenth edition, regarded the spined form as the type, figured by Rumphius, from whom the specific name was borrowed. This is still more evident by the synonyms of the variety *β*, which all belong to the subgenus *Siliquarius*. Rumphius says his shell is white, which proves it must be *S. muricata*, Born, and not the following. In the Linnean collection, according to Mr. Hanley, several species of *Tenagodus* are to be found.

2. Tenagodus ruber, (*Anguinaria*) Schum. 1817.

Differt a præcedente. T. gracilior solidior et tamen liris 6 validioribus interstitia fere æquantibus. Squamæ parvæ, in liris internis approximatæ; liræ externæ rudes, obsoletissime nodulosæ; interstitia costarum foveis quadratis obsoletis. Sculptura aperturam versus obsoleta. Color saturate purpureus.

Long. 24–25 cm., alt. ap. 6–7 mm.

Anguinaria rubra, Schum. Essai, 1817, p. 262 (excl. syn. Mart. f. 13, 14).

Siliquaria muricata, *β*, Lam. Hist. v. 338?; Chenu, Illustrations, p. 2. pl. 2. f. 14?

Siliquaria sulcata, Gray, List of Genera, Proceed. 1847, no. 261.

Hab. Moluccas.—One specimen in the collection of Mr. Cuming; about ten specimens are found in the different collections of Copenhagen.

3. Tenagodus polygonus, (*Siliquaria*) Blv.

Var. *Dunkeri.*

T. annulatim convoluta, liris prominentibus et regularibus 10–11, *externis validioribus, internis approximatis parvis, squamis minutissimis (detritis) ornatis. Interstitia lirarum plana transversim rugulosa unde irregulariter foveolata. Rima regulariter pertusa, aperturam versus utrinque denticulata, poris elongatis approximatis, dissepimentis angustis arcuatis. Color cretaceus pallidissime roseo-tinctus.*

Long. 22⅓ decim., alt. aperturæ circ. 6 mm.

Specimen dealbatum extat in coll. cl. Dunkeri.

Perhaps this variety might prove a distinct species; but as I have not seen the *T. polygonus*, I cannot yet decide the question.

Subgenus Siliquarius, Montfort.

T. spiraliter (plus vel minus) contorta, substantia calcarea molli, cortice peculiariter transversim fissurata. Operculum spirale, centro cellulis radiantibus.

Sect. A. *Rima porosa.*

4. Tenagodus (Siliquarius) cumingii, Mörch.

T. anfr. 5 primis scalariformibus, postice angulatis, angulo in anfr. ultimis evanescente; inferne granuloso-lirata, liris distantibus, interstitiis huc illuc lirula intercalante; transversim leviter

furcato-fissurata, fissuris in anfr. ultimis evanescentibus. Regio umbilicalis longitudinaliter undulato-striata, sulcis radiantibus distantibus sigmoideis decussata. Rima poris oblongis irregularibus plerumque geminatim confluentibus, in anfr. 8 *primis clausis; rima in anfr. ultimo aperta utrinque denticulata. Color albus, nebulis ferrugineis.*

Long. $22\frac{1}{2}$ cm., diam. circ. 6 mm.

Operculum alveariforme (*farinosum*) *pallide flavum, gyris* 11, *margine pulcherrime ciliato; area centralis parva saturate castanea nitida, obsoletissime impresso-punctata, late umbilicata; segmentis radiantibus bullatis leviter flexis circiter* 11, *sulco profundo peripherico circumscriptis; lamina marginali latissima pallide flava.*

Diam. 4 mm., alt. 3 mm.

Siliquaria anguina. Blainv. Man. t. 1. f. 11 ?

Hab. Ins. Philippin. (coll. Cumingii). Specimen unicum.

Among the whorls are the remains of a sponge, with spiculæ subulate at both ends.

Var. *α.* RUDIS.

T. trochlearis, crassa, anfr. inferne planatis, umbilico pervio, liris granulis validis approximatis asperis.

Long. 15 cm., alt. aperturæ 4 mm.

Hab. Ins. Philippin. legit H. Cuming (coll. Dunkeri).

Rumph. t. 41. no. 2 ?

Var. *β.* CONIFER.

S. anguina, Chenu, Man. p. 321 ?

T. valida, poris rotundis geminis rarius confluentibus.

Diam. 5 mm.

Operculum concavo-conicum, apice (*casu* ?) *truncato, gyris* 13; *area centralis lata, centro profunde et anguste umbilicato; segmentis radiantibus* 15 *planatis, canali peripherico excavato circumscriptis; lamina marginali angusta bipartita, annulo inferno castaneo, externo flavo.*

Diam. $3\frac{3}{4}$ mm., alt. $4\frac{1}{2}$ mm.

This operculum differs from that of the type by its deep and rather narrow umbilicus, by its much larger central area, and by its narrow marginal ring, which in the specimen appears damaged. The sides are concave, not convex, and the height is greater. The interstices of the whorls are in many places filled up with a chalky white matter.

Whether these differences are of specific value, or depend on age or on long desiccation, I cannot judge, having seen only a single operculum of this variety; I cannot discover important differences between the shells.

Hab. Ins. Philippin., H. Cuming legit (coll. Dunkeri, specimen fractum).

Var. γ. PLATYOMPHALA.

T. læviuscula, liris distantibus obsoletissime granulatis.

Diam. 5 mm., long. 18 cm.

Operculum cylindricum, apice late (casu?) truncato, gyris 10*; area centralis lata planiuscula, umbilico fundo plano et obliquo, segmentis radiantibus, sulcis intermediis rectis, canali peripherico profunde impresso; lamina marginali angusta bipartita annulo interno castaneo, margine externo flavescente.*

Diam. $3\frac{3}{4}$mm., alt. 3 mm.

Hab. Ins. Philippin., legit H. Cuming.

The operculum most like that of var. β; but the umbilicus is not deep, and has a flat bottom. The sculpture of the shell appears very different, but the size of the granulation varies much in the same individual. In case the difference of the operculum (as in *Serpula*) should prove specific, I have named the variety with reference to the umbilicus of the lid.

Var. δ. LUMBRICALIS, Rumph. t. 41. f. N 1?

T. crassa, lirulis compressiusculis, granulis obliteratis.

Long. 22 cm., diam. 5 m.

Hab. Ins. Philippin. (coll. H. Cumingii). Specimina 3.

One of the specimens has a spiral impression under the porous slit.

Var. ε. LÆVI-LIRATA.

T. gracilis, liris angustissimis lævigatis, poris rotundis distantibus rarius confluentibus, rima aperturam versus simplice. Color albus sordide flavescens.

Long. 17 cm., diam. aperturæ 5 mm.

Hab. Singapuhra (coll. Cumingii). Specimen unicum.

This variety seems a good species if the smooth liræ prove constant; but the preceding is exceedingly like it.

Var. ζ. JAPONICA.

T. gracilis, crassa, liris angustis læviusculis approximatis, in anfr. primis divaricatis (an morbo?). Rima in anfr. ultimis simplici; poris approximatis rotundis fere confluentibus. Color albus inferne fascia ferruginea lata irregulari.

Long. 18 cm., ap. diam. $4\frac{1}{2}$ mm.

Hab. Japan (coll. Cumingii). Not unlike Rumph. t. 41. f. N 1.

5. TENAGODUS (SILIQUARIUS) TOSTUS, n. sp., Mörch.

T. tenuiuscula, spira turbiniformis, liris disjunctis angustis lævіusculis obsoletissime undulato-granulatis, granulis distantibus. Rima utrinque linea undulata marginata, poris immersis ellipticis subregulariter distantibus. Color albus; anfr. ultimi inferne pallide ferruginei, anfr. 4 et 5 *saturate castanei.*

Long. circ. 12 cm., apert. diam. 5 mm.

Siliquaria anguina, Chenu, pl. 1. f. Y, non absimilis.

Hab. Ins. Ceylon (*E. L. Layard*), specimen unicum.

This species differs chiefly from the last in the elliptical distant pores, the slit being bordered by a narrow elevated undulated line on both sides. Except in the last whorl, the slit seems situated on the top of a feeble carina. Although the shell is smaller, the aperture is larger than in the preceding.

6. Tenagodus (Siliquarius) australis, Quoy & Gaimard.

Var. α. scalariformis.

T. anfractibus 6 *subregulariter spiraliter contortis, tenuiusculis, postice angulatis, inferne liratis, oblique obsolete sulcatis, transversim conferte laminato-fissuratis ; apertura dilatata. Rima utrinque undulato-dentata, dentibus in anfr. primis tangentibus unde poris rotundis approximatis. Color candidus, inferne ferrugineus ad basin testæ.*

Long. 21½ cm., diam. ap. 11 mm., alt. 14 mm. (circiter).

Operculum subcylindricum medio paululum contractum, gyris circiter 13, *truncatum* (*casu ?*)*; area planiuscula, centro impresso sed non umbilicata ; segmentis radiantibus angustis circiter* 15 *interdum obsolete bifidis, arcuatis vel leviter sigmoideis sulco peripherico profundo circumscriptis ; lamina marginali angusta dilute castanea, margine radiatim dense lirato, liris in cilia brevissima euntibus.*

Diam. 6 mm., alt. 8 mm.

Australia (coll. Cuming.), specimen unicum.

The specimen looks somewhat like *Scala scalaris*, and is not unlike the top of the figure 1 *r*. pl. 1 in Chenu's ' Illustrations.' I am not quite sure that this is not specifically different from *S. australis* in Chenu's ' Illustrations.'

Var. β. multilirata.

T. spiralis irregulariter contorta, longitudinaliter liris angustissimis perspicuis, interstitiis lirula intercalante. Rima aperturam versus clausa ; poris rotundis plerumque fissura conjunctis in anfr. primis 3 *clausis ; apex decollatus, dissepimento conoideo clausus.*

Long. 21½ cm., diam. ap. circiter 10 mm.

Australia, specimen detritum in coll. Dunkeri.

Var. γ. tæniata, Adams, Genera, t. 39. f. 5 *d*.

T. laxe spiralis, longitudinaliter liris angustis parum prominentibus ; rima aperturam versus simplex, utrinque acuta, in anfr. superioribus utrinque undulato-dentata, dentibus sæpe tangentibus unde poris ovalibus, in anfr. 5–6 *primis clausis. Color testæ albus, strati externi ferrugineus ; rima utrinque lineis castaneis marginata.*

Long. 30 cm., diam. ap. 12 mm.

Siliquarius anguilus, Montfort, fig. p. 39, simillima.

Operculum cylindricum late truncatum (*casu ?*) *gyris* 6 ; *area inflata, centro profunde immerso, segmentis radiantibus angustis*

circiter 22 convexiusculis, sulco peripherico impresso circumscriptis ; lamina marginalis bipartita, annulo interno angusto saturate castaneo nitido, externo radiatim dense lirato, liris in cilia minuta triangularia euntibus.

Diam. 9 mm., alt. 7 mm.

This operculum differs chiefly from that of var. *a* by its great convexity round the centre.

The specimen in the collection of Mr. Cuming is marked "Mediterranean ;" but in the interior were found rudiments of an *Elenchus*, a genus only found in Australia. It is so closely allied to the preceding variety, that I do not doubt it is the same species, although the Mediterranean often affords species closely allied to Australian.

Var. δ. FERRUGINEA, *linea castanea infra rimali.*

T. gracilis, obsolete longitudinaliter lirulata ; saturate ferruginea aperturam versus albescens.

Long. 10½ cm., diam. apert. 1½ mm.

This and the following must be regarded as young specimens, although the diameter of the whorls is less than that of the preceding.

Hab. Australia (coll. Cuming.).

Var. δ*. *Præcedenti simillima sed spira turbinata.*

South Australia (coll. Cumingii), specimen unicum.

Sect. B. *Rima simplex ; apex plerumque haliotoideus ; primus fissuram nullam habet.*

7. TENAGODUS (SILIQUARIUS) OBTUSUS, Schum. 1817.

Siliquaria anguina, Philippi, Enumeratio, i. p. 173, t. 9. f. 24 ; M. Gray, Figures, i. pl. 58. f. 1 (copy).

Tenagodus anguinus, Adams, Genera (copy).

Serpula anguina, Born, Index, p. 457 ; Born, Testacea, p. 440, t. 18. f. 15 ; Shaw, Miscel. (copy from Born).

Anguinaria obtusa, Schum. Essai, p. 262.

β. *Serpula annularis*, Dillwyn, 1817, p. 1081. no. 29 ; Wood, Index, f. 28 (copy) ; Buonanni, i. 20. no. C ; Scilla, de Corporibus, t. 12. f. 3, p. 55 (copy) ; Mart. Conch. Cab. i. t. 2. f. 16 (copy).

γ. *Siliquaria anguina*, Sow. Genera (cum juvenili) ; Chenu, Illustr. pl. 1. f. 1 *z, q, v, r, b.*

I have not seen any authentic specimen from the Mediterranean of this species. I do not know which name has priority. Schumacher's 'Essai' is dated March 1, 1817, and the first volume of Dillwyn Jan. 1, 1817, but the second volume has no date. I have not referred Montfort's *Siliquarius angustus* to this species, which has a simple slit, while Montfort indicates the following characters :—"Une fente étroite, plus ou moins dentelée, peut-être même dans quelques espèces indiquée par une file sériale de trous. Amboine, d'où viennent ceux que l'on voit dans nos collections."